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RE: Water Quality Standards Triennial Revision (LAC 33:IX.1101, 1105, 1107, 1109, 1113, 1115, 1119, 1121, and 1123) (WQ097)

Dear Ms. Johnson,

Please accept the following comments from Healthy Gulf<sup>1</sup> regarding Louisiana Department of Environmental Quality's (LDEQ) Water Quality Standards Triennial Revision (LAC 33:IX.1101, 1105, 1107, 1109, 1113, 1115, 1119, 1121, and 1123) (WQ097). We reserve the right to rely on all comments submitted, including those submitted by the Tulane Environmental Law Clinic.

**Highest Attainable Use definition is unclear.**

In the §1105 Definitions, a new definition of 'highest attainable use' has been proposed. The definition as proposed is confusing. The first sentence refers to a 'modified aquatic life, wildlife or recreation use.' This does not make clear that the highest attainable use of most waters *need not be modified*. This definition seems to imply that the highest attainable use cannot be a regular existing or designated use. If it is the 'highest attainable,' it may not need to be a modified use.

**Antidegradation procedures must include public participation in water body-by-water body and parameter-by-parameter approaches.**

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<sup>1</sup> Healthy Gulf is committed to uniting and empowering people to protect and restore the natural resources of the Gulf Region, forever protecting it for future generations. Healthy Gulf has members throughout the Gulf states, including Louisiana. More information is available at [healthygulf.org](http://healthygulf.org). Please feel free to contact Matt Rota, Senior Policy Director by phone at (504)525-1528x206 or by email at [matt@healthygulf.org](mailto:matt@healthygulf.org).

More clarity should be given to the proposed §1109.A.2.a. This section states that waters may be identified “on a parameter-by-parameter basis or on a water body-by-water body basis. Where the state identifies waters for antidegradation protection on a water body-by-water body basis, the state shall provide an opportunity for public involvement.” However, there is no statement regarding public involvement if a parameter-by-parameter approach is used. We request that this section be revised to include public involvement on all antidegradation analyses and decisions.

**Variances must have a public comment period.**

§1109.D describes how variances may be used in the water quality standards context. However, we did not see a public comment opportunity in these proposed regulations. If variances are issued, they could impact public health, drinking water, and wildlife. With this possibility and in the name of transparency, we request that any enacted under the rules in this section be required to have a public comment period and opportunity for a public hearing.

**Louisiana must comply with USEPA criteria or justify why criteria are less stringent or missing.**

EPA has put forward criteria for multiple pollutants. The following are pollutants that EPA recommends that LDEQ has not adopted. We request these criteria to be added to Louisiana’s water quality standards. If they are not added, an adequate justification should be given.

Acrolein, Silver, Suspended Solids, Turbidity, Sulfide-Hydrogen Sulfide,  
Tributyltin (TBT)

Further, EPA submitted a memo on April 14, 2016 which outlined criteria that needed to be addressed or updated. The list of these criteria can be found below. We request that LDEQ adopt these criteria.

### Recommended Changes to Table 1

Toxic Substance	Freshwater µg/L			
	LA Acute	EPA Acute	LA Chronic	EPA Chronic
Cyanide	45.9	22	5.4	5.2
Endrin	0.0864	0.086	0.0375	0.036
Hexachlorocyclohexane (gamma BHC; Lindane)	5.3	0.95	0.21	--

Toxic Substance	Drinking Water Supply ug/L	
	LA	EPA
Aldrin	0.00004	0.00000077
Cyanide	663.8	4
DDE	0.00019	0.000028
DDT	0.00019	0.00003
1,3-Dichloropropene	0.33	0.27
Dieldrin	0.00005	0.0000012
Endrin	0.26	0.03
Ethylbenzene	247	68
Heptachlor	0.00007	0.0000059
Hexachlorobenzene	0.00025	0.000079
Hexachlorobutadiene	0.09	0.01
Hexachlorocyclohexane (gamma BHC; Lindane)	0.11	0.0066
Polychlorinated Biphenyls, Total (PCBs)	0.000559	0.000064
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)5	.71x10-6	5.0x10-9
Toluene	6,100	57
1,1,2-Trichloroethane	0.56	0.55
Trichloroethylene	2.8	0.6
Vinyl Chloride (Chloroethylene)	0.0237	0.022

### Recommended Changes to Numerical Criteria to Table 1A

Toxic Substance	LA Acute	EPA Acute	LA Chronic	EPA Chronic
Chromium III	$e^{(0.8192[\ln(\text{hardness})] + 3.6880)} \times 0.316$	$e^{(0.8190[\ln(\text{hardness})] + 3.7256)} \times 0.316$	$e^{(0.8192[\ln(\text{hardness})] + 1.5610)} \times 0.860$	$e^{(0.8190[\ln(\text{hardness})] + 0.6848)} \times 0.860$
Cadmium	$e^{(1.1280[\ln(\text{hardness})] - 1.6774)} \times (1.136672 - [\ln(\text{hardness})(0.041838)])$	$e^{(1.0166[\ln(\text{hardness})] - 3.924)} \times (1.136672 - [\ln(\text{hardness})(0.041838)])$	$e^{(0.8192[\ln(\text{hardness})] - 1.3860)} \times (1.101672 - [\ln(\text{hardness})(0.41838)])$	$e^{(0.7409[\ln(\text{hardness})] - 4.719)} \times (1.101672 - [\ln(\text{hardness})(0.41838)])$
Copper	$e^{(0.9422[\ln(\text{hardness})] - 1.3844)} \times 0.960$	$e^{(0.9422[\ln(\text{hardness})] - 1.700)} \times 0.960$	$e^{(0.8545[\ln(\text{hardness})] - 1.3860)} \times 0.960$	$e^{(0.8545[\ln(\text{hardness})] - 1.702)} \times 0.960$

Toxic Substance	LA Acute	EPA Acute	LA Chronic	EPA Chronic
Copper	3.63	--	3.63	3.1
Mercury	2	1.8	0.025	--

**LDEQ should adopt the EPA Recommended Recreational Ambient Water Quality Criteria for two Cyanotoxins, Microcystins and Cylindrospermopsin.**

LDEQ should adopt numeric criteria for Cyanotoxins. While EPA released final numbers for these criteria, we submit that LDEQ should adopt the EPA's draft recommendation, as opposed to its final recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin.<sup>2</sup> These draft criteria limit microcystins to 4 ug/L and cylindrospermopsin to 8 ug/L<sup>3</sup> and are more consistent with other state recreational water cyanotoxin action levels.<sup>4</sup> EPA's final recommended values, on the other hand, are 8 ug/L for microcystins and 15 ug/L for cylindrospermopsin, nearly doubling the draft recommended values.<sup>5</sup>

While the EPA contends that an updated ingestion rate based on a 2017 study was the primary factor for the change in the recommended values, the final recommended values were based only on potential ingestion exposure (based on estimated average pool water ingestion), and not on inhalation, dermal absorption, or from eating contaminating fish or shellfish. Therefore, it assumes that all cyanotoxin exposure is from ingestion.<sup>6</sup>

Exposure can occur through various recreational and non-recreational pathways. Exposure from recreational water sources can occur through incidental ingestion while recreating, contact with the skin during activities like swimming, wading, fishing, boating, kayaking, and surfing, and inhalation as waterborne cyanotoxins are aerosolized.

Further, EPA's final recommended values do not account for the multiple ways in which a person could be exposed to cyanotoxins while recreating. Whereas the draft recommended criteria considered multiple exposure pathways and utilized an 80% relative source contribution (RSC), providing a "margin of safety" for individuals who may be exposed to cyanotoxins from different sources and through different routes,<sup>7</sup> the final recommended values eliminated the RSC and assume all cyanotoxin exposure is from ingestion.<sup>8</sup>

In developing water quality criteria, the state must adequately protect people from both the short-term and long-term effects of cyanotoxins.<sup>9</sup> Short term impacts include gastrointestinal, dermatologic, respiratory, neurologic and other symptoms.<sup>10</sup> Some exposures have resulted in severe respiratory impairment (such as pneumonia and adult

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<sup>2</sup> See *In Re: Petition to Initiate Rulemaking to Establish Water Quality Criteria for Cyanotoxins*, Petition to Initiate Rulemaking to Establish Water Quality Standards for Cyanotoxins in Florida Surface Waters, Center for Biological Diversity, Sanibel-Captiva Conservation Foundation, and Calusa Waterkeeper, OGC Case No. 19-0419, at 113-16 (May 23, 2019).

<sup>3</sup> No more than 10 percent of days in a recreational season (up to one calendar year). EPA. 2016. Memorandum from Joel Beauvais, Deputy Assistant Administrator to State Environmental Commissioners, State Water Directors, "Renewed Call to Action to Reduce Nutrient Pollution and Support for Incremental Actions to Protect Water Quality and Public Health", (Sept. 22, 2016). at 52.

<sup>4</sup> See EPA (2016), Appendix B State Recreational Water Guidelines for Cyanotoxins and Cyanobacteria at B-4 (California), B-5 (Colorado), B-9 (Ohio), B-10 (Vermont), B-17 (Virginia).

<sup>5</sup> Not to be exceeded in more than three 10-day assessment periods over the course of a recreational season. EPA (2019) at 76.

<sup>6</sup> U.S. Environmental Protection Agency. 2019. Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin (EPA 2019). at 58.

<sup>7</sup> EPA (2016) at 44.

<sup>8</sup> EPA (2019) at 58.

<sup>9</sup> See 33 U.S.C. § 1313(c)(2)(A) (stating that water quality standards shall be such as to protect the public health or welfare, enhance the quality of the water, and serve the purposes of this chapter)

<sup>10</sup> EPA (2016) at 4.

respiratory distress syndrome), as well as liver and kidney damage from ingesting contaminated drinking water.<sup>11</sup>

There may also be significant long-term impacts from chronic, low-level exposure, including higher incidence of some cancers, non-alcoholic liver disease, Lou Gehrig's disease (amyotrophic lateral sclerosis, or "ALS"), Alzheimer's disease, and Parkinsonism Dementia Complex (ALS/PDC).<sup>12 13 14 15</sup>

LDEQ should act immediately, follow the precautionary principle, and expeditiously establish the most protective water quality criteria for microcystins and cylindrospermopsin. These criteria would establish clear numeric baselines and form the basis of water quality monitoring that would provide state environmental and health officials with critical information to notify the public of the health and safety risks of recreating in waters with high cyanotoxin levels.

### **Waters in the Lake Pontchartrain Basin dissolved oxygen criteria should be returned to 5.0mg/l**

For twenty-six waterbody subsegments in the Lake Pontchartrain Basin, LDEQ has not proposed changes in this triennial review to the currently-applicable water quality standards. See WQ097 at §1123, Table 3; La. Admin. Code tit. 33, Pt. IX (October 2019)(current version of water quality standards). In the currently applicable standards, LDEQ indicates that the dissolved oxygen (DO) criteria for these waters is 2.3 mg/L from March through November. La. Admin. Code tit. 33, pt. IX, §1123, Table 3. These subsegments are: 040201, 040303, 040306, 040402, 040403, 040404, 040503, 040508, 040601, 040606, 040702, 040705, 040809, 040907, 040915, 040916, 040917, 041101, 041201, 041202, 040807, 040808, 040903, 040912, 040913, and 040914. However, these twenty-six waterbody subsegments, plus an additional five which LDEQ proposes to change in this rulemaking (040305, 040401, 040506, 040604, 040605), the legally-applicable and appropriate DO criterion is 5.0 mg/L year-round (4.0 mg/L for estuarine waters). Collectively, these 31

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<sup>11</sup> Hillborn, E.D. and V.R. Beasley. 2015. One health and cyanobacteria in freshwater systems: animal illnesses and deaths are sentinel events for human health risks, *Toxins*, 1374-1395.

<sup>12</sup> Svircev, Z., Lalic, D., Savic, G.B., Tokodi, N., Backovic, D.D., Chen, L., Meriluoto, J., and Codd, G.A. 2019. Global geographical and historical overview of cyanotoxin distribution and cyanobacterial poisonings. *Archives of Toxicology*. 93(9):2429-2481.  
<https://doi.org/10.1007/s00204-019-02524-4>.

<sup>13</sup> Zhang, F, J. Lee, S. Liang, and C.K. Shum. 2015. Cyanobacteria blooms and non-alcoholic liver disease: evidence from a county level ecological study in the United States, *Environmental Health*, 14:41.

<sup>14</sup> News Medical Life Sciences, Toxic algae may be more harmful for people with pre-existing liver disease, (Sep. 19, 2019), at <https://www.news-medical.net/news/20190919/Toxic-algae-may-be-more-harmful-for-people-with-pre-existing-liver-disease.aspx>; Lad, A. et al. 2019. Chronic low dose oral exposure to microcystin-LR exacerbates hepatic injury in a murine model of non-alcoholic fatty liver disease. *Toxins*.  
[Doi.org/10.3390/toxins11090486](https://doi.org/10.3390/toxins11090486).

<sup>15</sup> Banack, S.A. et al. 2010. The Cyanobacteria Derived Toxin Beta-N-Methylamino-L-Alanine and Amyotrophic Lateral Sclerosis, *Toxins* 2010, 2, 2837-2850; Bienfang P.K. et al. 2011. Prominent Implications. *International Journal of Microbiology*. Vol. 2011. Article ID 152815.

waterbodies compose the eastern Lower Mississippi River Alluvial Plains Ecoregion (eLMRAP).

In fact, on February 25, 2019, a federal court vacated LDEQ's site-specific 2.3 mg/L DO standard for these 31 waterbodies and remanded the matter to EPA for further proceedings. EPA has yet to publish or complete any new action approving or disapproving those standards, adopted by LDEQ in December 2015 as WQ091.

In this rulemaking, LDEQ should list the applicable water quality standard for these 31 waters as 5.0 mg/L for freshwaters and 4.0 for estuarine, both because that is the legally-applicable standard since the federal court vacated the 2.3 standard and because 5.0 mg/L (4.0 for estuarine) DO year-round is required to protect the designated uses. These comments will focus on the adverse impacts that 2.3 mg/L of DO is likely to have on species listed under the Endangered Species Act. We also attach, by reference, our September 4, 2015, comments on WQ091 regarding the additional reasons that a 2.3 mg/L DO standard violates the Clean Water Act. [cite EDMS Doc #].

A DO criteria of 2.3 mg/L from March through November in the eLMRAP ecoregion ("lowered criteria") would adversely affect both the Alabama heelsplitter (*Potamilus inflatus*) and the Gulf sturgeon (*Acipenser oxyrinchus desotoi*). The Alabama heelsplitter and the Gulf sturgeon are both listed as threatened species under the Endangered Species Act. Imposition of the lowered criteria in the eLMRAP ecoregion will also result in the destruction and/or adverse modification of critical habitat for the Gulf sturgeon. The Alabama heelsplitter and the Gulf sturgeon occur in many of the waterbody subsegments to which the revised criteria apply, and the revised criteria apply to subsegments designated as critical habitat.

Evidence suggests that drastically lowering the DO criteria in the eLMRAP ecoregion will adversely affect the Alabama heelsplitter, particularly during species recruitment by degrading water quality and creating an inhabitable environment for the species' host fish. Evidence also indicates that the drastically lowering the DO criteria in the eLMRAP ecoregion will jeopardize and adversely affect the Gulf sturgeon, during the most susceptible stages of its life cycle - larval and juvenile stages.

The revised dissolved oxygen criteria will most likely result in the adverse modification of the Gulf sturgeon's critical habitat, violating Section 7(a)(2) of the Endangered Species Act. Reducing the DO standard from 5.0 mg/L to 2.3 mg/L for nine months of the year in these subsegments will constitute an adverse modification to the Gulf sturgeon's critical habitat.

*Thank you for the opportunity to comment on Louisiana's Triennial Review of its Water Quality Standards. We look forward to a written response and a final Triennial Review that adequately addresses our concerns.*

For a healthy Gulf,



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CC:

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